An Incomplete Contracting Model of Governance Structure Variety in Franchising

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ABSTRACT AND KEYWORDS	
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Abstract

For the purpose of explaining governance structure variety in franchising, we explore the impact of governance structure on the incentives to invest in specific assets for the franchisor as well as the distributors. Wholly-owned, wholly-franchised, and mixed (dual distribution) franchise systems are considered. Circumstances are identified when a dual distribution governance structure uniquely allocates efficient ownership over assets. Whether dual distribution benefits are realized in a franchise or a cooperative franchise depends on whether most value is added upstream or downstream. A disadvantage of a dual distribution system is the deterioration of the investment incentives of the party having no authority, i.e. either the company-owned outlet manager in a traditional franchise or the franchisor in a cooperative franchise. A wholly-franchised system may therefore be efficient even when unique dual distribution benefits are present. A necessary condition for the efficiency of a dual distribution governance structure is a positive systemic effect, not the value of the brand name or location (or other) differences between outlets.

Keywords: Franchising, Dual distribution, Governance, Incomplete contracting

1. Introduction

Franchising is an important business phenomenon. There are an estimated 1,500 different franchisors (franchise business companies) operating in the U.S; and there are believed to be more than 760,000 franchise businesses in the U.S. The franchising industry and businesses employs over 18 million people in the U.S. It is estimated that franchise businesses were responsible for over $1.53 trillion in economic output. It is also found that sales through franchise have accounted for a significant portion in the following industries: quick service restaurants (56.3%), lodging (18.2%), retail food (14.2%) and full service restaurants (13.1%) (Reynolds 2004).

Observation suggests that there is considerable governance structure variety in franchising. Blair and Lafontaine (2005, p88) provide statistics regarding the number of wholly franchised enterprises (where all outlets are owned by independent franchisees), dual distribution franchising (involving the coexistence of both franchisor-owned distributors and independent franchisees), and entirely company owned enterprises (where all outlets are owned by the franchisor). Well known examples of the first type are Baskin-Robbins USA Co. and Allegra Print & Imaging, while McDonalds, 7-Eleven Inc., and Jackson Hewitt Tax Service are examples of the second type. Dual distribution franchising is most widespread of these governance structures, while the third type, i.e. the franchisor owns all outlets, is rare. The business world adopts also other governance structures. An example is credit card company VISA where the franchisees own the brand and the business format regarding electronic payments. Other examples of cooperative franchises are Best Western hotels, ACE Hardware, True Value hardware, and Straw Hut Pizza. In these enterprises, either all outlets together own the brand and the business format, or some outlets own the brand and the business format. We label the former as cooperative franchising and the latter as dual distribution cooperative franchising.

Recent empirical work shows that dual distribution franchising is stable over time, i.e. the percentage of company ownership remains fixed after the early years in franchising and firms change their number of both company-owned and franchised outlets as they grow or decline. Lafontaine and Shaw (2005) show that the percentage of company-owned outlets is about 15% on average. However, there are substantial cross- and within-sector differences. For example, their study shows that restaurant chains have a higher percentage of company-owned outlets on average than the construction and maintenance sectors. They show also that there are substantial differences within sectors (Lafontaine and Shaw 2005). For example, the auto rental companies Hertz and National have high levels of company ownership (66% and 40% respectively), while Budget, Thrifty, and Dollar have much lower levels of company ownership. Their regression results show a strong positive relationship between brand value and the percentage of company-owned outlets.

A franchise is a vertical relationship between a franchisor and many franchisees. Combs et al. (2004, P907) characterize a franchise by '… one firm (the franchisor) sells the right to market goods or services under its brand name and using its business practices to a second firm (the franchisee)'. This definition stresses the importance of the brand and the business format in franchising, and the right to market goods or services. We will address the relationship between the investment in specific assets, like the brand name and local market knowledge, and governance structure, i.e. the allocation of rights. A standard way of delineating a governance structure is to

distinguish income and decision rights (Hansmann 1996).[1] Income rights address the question 'How are benefits and costs allocated?', i.e. they specify the rights to receive the benefits, and obligations to pay the costs, that are associated with the use of an asset. For example, a franchise has to choose the level of the royalty rate and the franchise fee. Other important themes regarding income rights are financing, cost allocation schemes, and the effects of horizontal as well as vertical competition. Decision rights in the form of authority and responsibility address the question 'Who has authority or control?', i.e. they concern all rights and rules regarding the deployment and use of assets. For example, a franchise chain has to decide how many outlets will be company-owned. Important themes regarding authority are its allocation ('make-or-buy' decision), formal versus real authority, relational contracts, access, decision control (ratification, monitoring), decision management (initiation, implementation), task design, conflict resolution, and enforcement mechanisms.[2]

The main aim of this article is to develop an incomplete contracting theory regarding governance structure variety in franchising.[3] More specifically, the relationship between the specific investments of all parties in the franchise system and its efficient governance structure is investigated. Franchisees and the franchisor invest in different activities. For example, franchisees invest in local advertising and customer service, quality control, human resource management, and product innovation (Sorenson and Sørensen 2001), while the franchisor invests in system-specific assets like know-how and the brand name (Klein and Leffler 1981, Norton 1988).[4] The value generated by these investments may depend on governance structure, as indicated by the above observations about widespread stable dual distribution. This is captured by the specification of a unique dual distribution benefit, i.e. a systemic effect.[5]

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[1] Saloner et al. (2001) distinguish incentives and authority.

[2] Decision rights are relevant next to income rights because contracts are in general incomplete, due to the complexity of the transaction or the vagueness of language. Incomplete contracts are completed by the allocation of authority in order to decide in circumstances not covered by the contract.

[3] Windsperger and Dant (2006) provide support for this perspective in a franchising context.

[4] The interests of the franchisees and the franchisor are usually not completely aligned with the interests of the entire franchise system. Illustrations are the concerns about free-riding by franchisees on the brand name and territorial encroachment of franchisors adding new units of their brand proximately to their franchisees' existing units (Kalnins 2004). It is therefore assumed that each party maximizes its own profit, not the profits of the franchise system.

[5] Many ideas regarding the modeling of a dual distribution benefit have been proposed in the literature. Full company ownership entails stronger investment incentives for the franchisor, but it may increase monitoring costs to prevent shirking, capital costs and search costs (Brickley and Dark 1987, Brickley et al. 1991, Blair and Kaserman 1994, Minkler and Park, 1994). Lewin-Solomon (1999) argues that a dual distribution franchise enhances innovation by providing a credible signal to (potential) franchisees that only profitable innovations will be implemented. Sorenson and Sørensen (2001) explain the franchise mix as the result of a trade-off between exploration (franchising) and exploitation (company-owned units) in organizational learning. The relative compensation literature highlights the 'ratcheting' of incentives (Lazear and Rosen 1981, Green and Stokey 1983). Complementarities along the lines of Bradach (1997) are central in the system of attributes literature (Holmstrom and Milgrom 1991, 1994). Fisher and Harrington (1996) is an example outside the franchising literature, which may provide a way of modeling the evidence that larger, urban units that are close to headquarters are more likely to be company owned (see Lafontaine and Slade (2001) for a review). The size of the dual distribution benefit is treated as an exogenous parameter in our model in order to highlight the relationship between investment incentives and governance structure. This parameter is therefore to be interpreted as a reduced form of an underlying interaction process.

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A governance structure has an impact on the incentive to invest because it allocates ownership over assets.[6] The value of an efficient governance structure is that it provides all parties with incentives to invest in such a way that the entire franchise system generates the highest value. We compare wholly-franchised systems, wholly-owned systems, and mixed/dual distribution systems.[7] Circumstances are identified when dual distribution is the unique governance structure that induces investment by the various parties exactly when it is efficient to do so. To illustrate, suppose McDonald's has two restaurant outlets, one in NYC and the other in Quincy, IL. Further, imagine that the overall chain can benefit from knowing the upcoming trends in consumer tastes, styles, and behavioral attitudes by helping the McDonald's franchisor implement new programs. Assume also that acquiring this knowledge is costly for the restaurant manager. Given that NYC is a cosmopolitan city, it is less costly for the manager there to note, measure, and communicate this information than at the Quincy location. So while the NYC outlet is in a better position to acquire this knowledge, its incentive to do so depends on the degree of ownership it has over these benefits. In other words, if the Quincy location free rides of NYC's marketing research, then the NYC manager is less inclined to undertake the costs than if this manager actually owned a stake in the benefit. The idea is thus, that dual-distribution governance with the NYC manager owning the NYC outlet and the McDonald's franchisor owning the Quincy outlet is the most efficient.

The trade-offs involved in the determination in the efficient governance structure are addressed by answering two questions: What is the incentive to invest for each party in the franchise system in each governance structure? Which governance structures are efficient under which circumstances? The paper is organized as follows. Section 2 presents the model. In section 3, the incentive to invest is determined for each party in each governance structure. Section 4 identifies the efficient governance structures. Section 5 concludes.

2. Model

This section presents a non-cooperative game theoretic model of the interactions between governance structure and the investment of the parties in the franchise system. We have to specify therefore the decision making parties, the investment and governance possibilities, the payoffs, and the sequence of decisions.[8] Figure 1 presents a franchise system consisting of three parties: party 1 is the franchisor considering a brand / trademark investment generating a value A for the franchise system, party 2 is a distributor considering an investment generating a value B for the franchise system, and party 3 is a distributor considering an investment generating a value C (>B) for the franchise system. The cost of investment by party i is k_i when party i invests, otherwise it is 0.

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[6] Brickley et al. (1991), Gallini and Lutz (1992), Mathewson and Winter (1994), Lutz (1995) and Dutta et al. (1995) emphasize already the importance of ownership in determining the incentives to invest in different governance structures from a transaction cost economics perspective.

[7] Multiple channels of distribution have been studied before, like the coexistence of employees and subcontractors to perform trucking services (Baker and Hubbard 2004), the coexistence of spot and contract markets in many agricultural markets (Hendrikse 2007), and the marketing literature on dual channels (Balasubramanian 1998, Chiang et al. 2003, Liu and Zhang 2006, Purohit 1997, Zettelmeyer 2000).

[8] Lafontaine and Shaw (2005) show that experienced franchisors maintain a fixed percentage of company-owned outlets. Franchises establish this stable percentage usually after seven years. Our (equilibrium) model is addressing these established franchises.
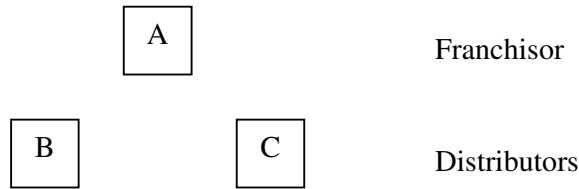
Figure 1: The three parties

     In order to determine the impact of governance structure on the incentive to invest of each party, seven governance structures regarding the three parties are distinguished in figure 2. A cross in a box indicates that this party has authority/power. Governance structure I entails that all outlets are company owned, i.e. the franchisor has all the power. There are two dual distribution governance structures when the franchisor has power. The high value franchisee (i.e. party 3) is independent in governance structure II and has therefore power, while the low value franchisee (i.e. party 2) has no power. The power of the distributors is reversed in governance structure III.[9][10] The entire chain is franchised in governance structure IV. Finally, three cooperative franchises are distinguished. A cooperative franchise is characterized by the assets of the franchisor being owned by one or both distributors. In governance structure V, the two stores have the ownership over the entire network. Governance structure V is called a cooperative franchise. There are two dual distribution cooperative franchises as well. The low value distributor owns the brand in governance structure VI, while the high value distributor owns the brand in governance structure VII.

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[9] A franchise system consisting of just 2 distributors is a stylized modeling of reality. However, the evidence reported in the introduction section indicates that firms change their number of both company-owned and franchised outlets according to a fixed ratio as they grow or decline. It suffices therefore to limit the model to the dual distribution governance structures considered here. Moreover, it turns out that our governance structure results are not affected by having many distributors generating value B and many distributors generating value C. If party 2 is franchised and party 3 is the manager of a company-owned outlet, then governance structure III with 17 party 2 outlets and 3 party 3 outlets represents the finding of Lafontaine and Shaw (2005) that the percentage of company-owned outlets is about 15% on average.

[10] Differences in the individual characteristics of the outlets and franchisees, e.g. geographic proximity to each other, has been an important in the agency models (Brickley and Dark 1987).
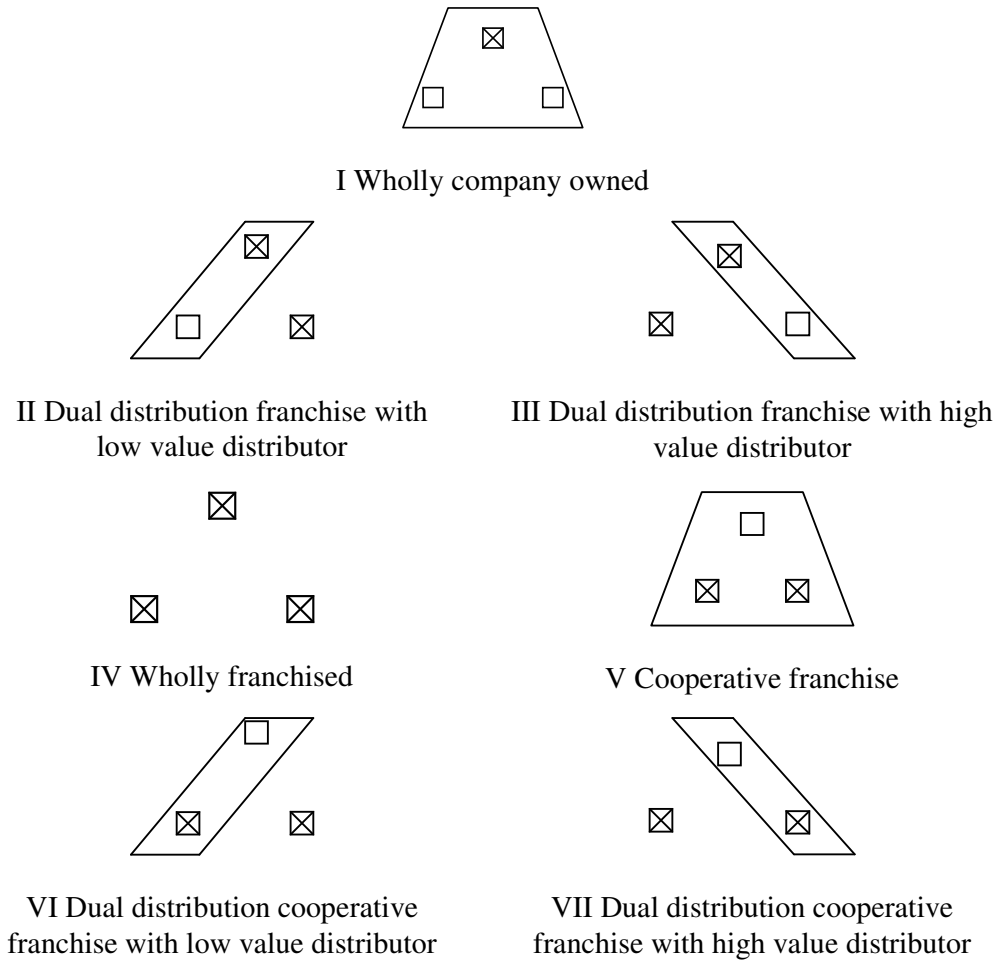
Figure 2: Seven governance structures

The previous section has motivated extensively that dual distribution may result in unique benefits. These dual distribution benefits may originate anywhere in the franchise system and may be allocated to one or more parties. A general way to describe the system effects of an investment in a specific governance structure generating a dual distribution effect is to define a parameter σ_{ijg}, where $i,j = 1,2,3$ and $g=$ II, III, VI, VII. Parameter σ_{ijg} is to be interpreted as the synergy effect of the value of the investment of party i benefiting party j in dual distribution governance structure g. A number of cases may be illuminating. First, if the dual distribution benefit is a horizontal externality, then $\sigma_{1jg}=0$ for $j=1,2,3$ and $g=$II,III,VI,VII. If the dual distribution benefit is a vertical externality, then $\sigma_{i1g}>0$ for $i=1,2,3$ and $g=$ II, III, VI, VII. Second, if the dual distribution benefit is a vertical externality, then $\sigma_{ijg}\neq0$ for $1\in\{i,j\}$ and $i\neq j$. Finally, if there is a positive (negative) dual distribution effect of the investment of party 2 and the size of this effect does not depend on the specific dual distribution governance structure, then $\sigma_{21g}+\sigma_{22g}+\sigma_{23g}>(<)$ 1 for $g=$II, III, VI, VII.

The next two sections determine the equilibrium features of the above model. In order to keep the analysis of the model as simple as possible, we analyze the case where the dual distribution benefit arises only from the investment of either party 2 or 3, all the dual distribution benefits of an investment are captured by one party in each

governance structure, and the effect of the investment of party 2 and party 3 is identical. Denote the identical synergistic effect by σ. We limit ourselves to the analysis of this model because it highlights already the main investment incentive effects of the various governance structures. Table 1 presents the specification of σ_{ijg} of the model to be analyzed in the next two sections. The values $\sigma_{1jg}=0$ reflect the first assumption, i.e. no dual distribution benefit arises from the investment of party 1. The second assumption, i.e. all the dual distribution benefits of an investment are captured by one party, is reflected in two of the parameters of the set $\{\sigma_{i1g}, \sigma_{i2g}, \sigma_{i3g}\}$ for i=2,3 and g=II, III, VI, VII being equal to 0.[11]

g	11	12	13	21	22	23	31	32	33
II	0	0	0	σ	0	0	0	0	σ
III	0	0	0	0	σ	0	σ	0	0
VI	0	0	0	0	σ	0	0	0	σ
VII	0	0	0	0	σ	0	0	0	σ

Table 1: Specification of σ_{ijg}

Table 2 presents the payoff of each party in every governance structure when all parties invest. These payoffs reflect the value and costs of investment and the impact of governance structure. (The Appendix motivates these payoffs by presenting the underlying characteristic function forms.) For example, the franchisor enjoys a payoff $A+\sigma B-k_1$ when he invests in governance structure II. Revenue A is received due to owning the brand/trademark and revenue σB is due to ownership of the outlet of party 2. The costs of investment are k_1. Party 2 receives no revenues due to lack of ownership of assets, while the costs of investment are born by him. Party 3 receives a dual distribution benefit generated by his investment and pays his costs of investment.

Governance structure \ Payoff	Franchisor	Party 2	Party 3
I	$A+B+C-k_1$	$-k_2$	$-k_3$
II	$A+\sigma B-k_1$	$-k_2$	$\sigma C-k_3$
III	$A+\sigma C-k_1$	$\sigma B-k_2$	$-k_3$
IV	$A-k_1$	$B-k_2$	$C-k_3$
V	$-k_1$	$A/2+B-k_2$	$A/2+C-k_3$
VI	$-k_1$	$A+\sigma B-k_2$	$\sigma C-k_3$
VII	$-k_1$	$\sigma B-k_2$	$A+\sigma C-k_3$

Table 2: Payoff of each party in every governance structures when all parties invest

The final ingredient of the non-cooperative game theoretic model to be specified is the sequence of decisions. Investment decisions are embedded in a governance structure. This implies that the governance structure is determined before the

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[11] Notice that this specification allows us to concentrate completely on the investment incentive effects of a governance structure, without considering either horizontal or vertical externalities. A horizontal externality will be involved when for most dual distribution governance structures $\sigma_{i2g} \neq 0 \neq \sigma_{i3g}$ for i=2,3. Similarly, a vertical externality will be involved when for most dual distribution governance structures $\sigma_{iig} \neq 0 \neq \sigma_{i1g}$ for i=2,3.

investment choices. The first stage of the game is therefore the governance structure stage, while investment decisions are determined in the second stage of the game. Three parties are taking investment decisions in the second stage of the game. Each player decides between investing and not investing in specific assets. The sequence of their decisions does not matter due to our specification of the payoffs. We choose to have the choice of the franchisor first, subsequently the choice of party 2, and finally the choice of party 3. The appendix depicts the extensive form of the game.

The sequence of decisions is in line with the classic incomplete contracting models of Grossman and Hart (1986) and Hart and Moore (1990), i.e. investment decisions are preceded by the determination of governance structure. A governance structure allocates the bargaining strength of each party in the first stage, while bargaining positions are determined by the investment choices in the second stage. An investment in the second stage deteriorates the bargaining position of the investing party due to the incompleteness of contracts.[12] The relationship between the first and the second stage is that the allocation of bargaining power by the governance structure in the first stage determines the incentive to invest in the second stage. (A cross in a box in figure 2 indicates that this party has the residual control / power / authority to decide in unforeseen circumstances.) A party is willing to deteriorate its bargaining position in the second stage by choosing to invest in specific assets when the prevailing governance structure allocates sufficient power to this party to capture a share of the quasi-surplus in the ex post bargaining process to cover the sunk costs of investment.

3. Equilibrium investment

The previous section has specified the game theoretic model in terms of the parties, the governance and investment alternatives, the payoffs, and the sequence of decisions. This section presents the equilibrium investment decision of each party. The subgame perfect equilibrium of the game is determined by the method of backward induction. It entails that the investment decisions in the second stage of the game are addressed first, given the choice of governance structure. A party chooses either to invest or not to invest. Investment by party i entails a cost k_i for this party and generates value. If a party does not invest, then there are no costs of investment and no value is generated. A party invests when the payoff of investment is higher than the payoff of not investing. Subsequently, the choice of governance structure is addressed, anticipating the equilibrium investment decisions in the next stage of the game.

Figure 3 presents the payoffs of the subgame perfect equilibrium investment decisions of all parties in every governance structure for all possible values of k_2 and k_3 when $k_1 \leq A$ and $\sigma > 1$.[13] The first (second, third) number in the vector after each governance structure is the subgame perfect equilibrium payoff of party 1 (2, 3). For example, if $k_3 \leq \sigma C$ and governance structure II is actual, then parties 1 and 3 will invest (resulting in positive payoffs $A - k_1$ and $\sigma C - k_3$, respectively) and party 2 does

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[12] Contractual incompleteness entails that it is hard to verify ex post that a party has made an investment and the associated costs. Examples are investments in system-specific assets, like the brand name and the business format, as well as local assets, like knowledge about the local market and local operations. The above model specifies therefore that the costs of investment are always paid by the investing party, regardless the governance structure.

[13] The case $k_1 > A$ is presented by replacing the payoff $A - k_1$ of the franchisor by 0 in all governance structures in figure 1.

not invest (resulting in payoff 0). Party 2 will never invest in governance structure II because no bargaining power is allocated to party 2. Party 3 recoups its investment costs in governance structure II only when $k_3 \leq \sigma C$. Governance structure II does not allocate sufficient bargaining power to party 3 to induce investment when $k_3 > \sigma C$.

k_3

I: $(A-k_1, 0, 0)$ II: $(A-k_1, 0, 0)$ III: $(A-k_1, \sigma B-k_2, 0)$ IV: $(A-k_1, B-k_2, 0)$ V: $(0, B-k_2, 0)$ VI: $(0, \sigma B-k_2, 0)$ VII: $(0, \sigma B-k_2, 0)$	I: $(A-k_1, 0, 0)$ II: $(A-k_1, 0, 0)$ III: $(A-k_1, \sigma B-k_2, 0)$ IV: $(A-k_1, 0, 0)$ V: $(0, 0, 0)$ VI: $(0, \sigma B-k_2, 0)$ VII: $(0, \sigma B-k_2, 0)$	I: $(A-k_1, 0, 0)$ II: $(A-k_1, 0, 0)$ III: $(A-k_1, 0, 0)$ IV: $(A-k_1, 0, 0)$ V: $(0, 0, 0)$ VI: $(0, 0, 0)$ VII: $(0, 0, 0)$
I: $(A-k_1, 0, 0)$ II: $(A-k_1, 0, \sigma C-k_3)$ III: $(A-k_1, \sigma B-k_2, 0)$ IV: $(A-k_1, B-k_2, 0)$ V: $(0, B-k_2, 0)$ VI: $(0, \sigma B-k_2, \sigma C-k_3)$ VII: $(0, \sigma B-k_2, \sigma C-k_3)$	I: $(A-k_1, 0, 0)$ II: $(A-k_1, 0, \sigma C-k_3)$ III: $(A-k_1, \sigma B-k_2, 0)$ IV: $(A-k_1, 0, 0)$ V: $(0, 0, 0)$ VI: $(0, \sigma B-k_2, \sigma C-k_3)$ VII: $(0, \sigma B-k_2, \sigma C-k_3)$	I: $(A-k_1, 0, 0)$ II: $(A-k_1, 0, \sigma C-k_3)$ III: $(A-k_1, 0, 0)$ IV: $(A-k_1, 0, 0)$ V: $(0, 0, 0)$ VI: $(0, 0, \sigma C-k_3)$ VII: $(0, 0, \sigma C-k_3)$
I: $(A-k_1, 0, 0)$ II: $(A-k_1, 0, \sigma C-k_3)$ III: $(A-k_1, \sigma B-k_2, 0)$ IV: $(A-k_1, B-k_2, C-k_3)$ V: $(0, B-k_2, C-k_3)$ VI: $(0, \sigma B-k_2, \sigma C-k_3)$ VII: $(0, \sigma B-k_2, \sigma C-k_3)$	I: $(A-k_1, 0, 0)$ II: $(A-k_1, 0, \sigma C-k_3)$ III: $(A-k_1, \sigma B-k_2, 0)$ IV: $(A-k_1, 0, C-k_3)$ V: $(0, 0, C-k_3)$ VI: $(0, \sigma B-k_2, \sigma C-k_3)$ VII: $(0, \sigma B-k_2, \sigma C-k_3)$	I: $(A-k_1, 0, 0)$ II: $(A-k_1, 0, \sigma C-k_3)$ III: $(A-k_1, 0, 0)$ IV: $(A-k_1, 0, C-k_3)$ V: $(0, 0, C-k_3)$ VI: $(0, 0, \sigma C-k_3)$ VII: $(0, 0, \sigma C-k_3)$

σC (left axis label between row 1 and row 2)
C (left axis label between row 2 and row 3)

B σB k_2

Figure 3: Subgame perfect equilibrium payoffs when $k_1 \leq A$ and $\sigma > 1$

4. Efficient governance

This section formulates results regarding the efficient governance structure. First best efficiency entails that the highest possible surplus is generated. Consider the case $k_1 \leq A$. Generation of the highest surplus requires that party 2 (3) invests only when $k_2 \leq \sigma B$ ($k_3 \leq \sigma C$), while party 1 should always invest. Figure 3 shows governance structure II is the unique first best efficient governance structure when $k_2 > \sigma B$ and $k_3 \leq \sigma C$, while governance structure III is the unique first best efficient governance structure when $k_2 \leq \sigma B$ and $k_3 > \sigma C$. The governance structures I-IV are first best efficient when $k_2 > \sigma B$ and $k_3 > \sigma C$. Finally, there is no first best governance structure when $k_2 \leq \sigma B$ and $k_3 \leq \sigma C$. The reason is that a dual distribution governance structure is required to generate the first best outcome. However, a dual distribution governance structure has always one party without power, and therefore no incentive to invest, even when $k_1 \leq A$, $k_2 \leq \sigma B$ and $k_3 \leq \sigma C$. Section 4.1 identifies the second best governance structures, while section 4.2 formulates managerial implications.

4.1 Second best governance structures

Second best efficiency of a governance structure entails that the sum of the payoffs of the three players in this governance structure is at least as high as the sum

of the payoffs of the three players in any other governance structure. The second best efficient governance structures are determined using figure 3, and are presented in figure 4, when there is a positive, but limited, dual distribution externality.[14]
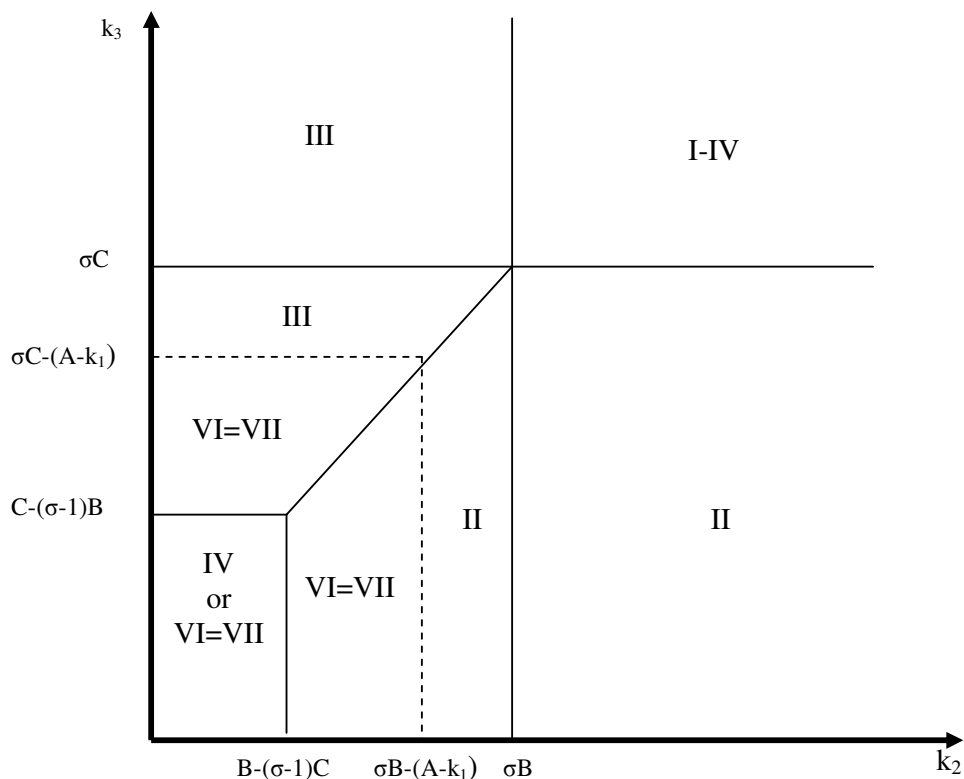

Figure 4: Second best efficient governance structures when $k_1 \leq A$ and $1 < \sigma < 1 + B/C$

A number of results can be formulated. First, the dual distribution cooperative franchises VI and VII are identical in terms of efficiency. The reason is that the franchisor will not invest in these governance structures in equilibrium due to not having any power. Ownership of the assets of the franchisor generates therefore no revenues for the owner.

Second, cooperative franchise V is never efficient. It is dominated by the dual distribution cooperative franchises because they generate the positive dual distribution externality, whereas V does not.

Third, governance structure I is never a unique efficient governance structure. The distributors have no power in governance structure I, and therefore no incentive to invest. Governance structure I is only efficient when the two distributors do not invest due to the high costs of their investments. If $k_2 \geq \sigma B$ and $k_3 \geq \sigma C$, then the franchisor is the only party investing in the governance structures I-IV. (Nobody invests in the governance structures V-VII. They are inefficient.) However, if one of these inequalities does not hold, then I is always strictly dominated by either II, III or IV. The franchisor and at least one of the sellers will invest in the governance

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[14] The upward sloping line in the figures 2 and 3 is characterized by $k_3 = \sigma(C-B) + k_2$.

structures II-IV, whereas the franchisor is the only party investing in governance structure I.

Fourth, governance structure III is the unique efficient governance structure in the north-west rectangle. Seller C never invests when $k_3 > \sigma C$ because the costs of investment are too high, regardless the choice of governance structure. This is efficient. Governance structures I-IV are efficient in inducing the efficient decision by the franchisor. The franchisor does not invest in the cooperative franchises V-VII due to a lack of power. These governance structures are therefore inefficient. Party 2 does not invest in the governance structures I and II because there is no incentive to invest due to the lack of power. These governance structures are inefficient because the value generated by party 2 is larger than its costs. However, party 2 invests in the governance structures III and IV due to having sufficient power. Governance structure III strictly dominates governance structure IV when there are positive dual distribution externalities, i.e. $\sigma > 1$, because the surplus $\sigma B - k_2$ generated by seller B in governance structure III is larger than the surplus $B - k_2 > 0$ of party 2 generated in governance structure IV.

Fifth, a similar reasoning applies to governance structure II being uniquely efficient in the south-east rectangle. It discourages efficiently investment by party 2 with its relatively high costs of investment, while party 3 invests and generates the dual distribution externality.

Sixth, the efficient governance structure choice in the south-west depends on the parameter values. The results are presented in two stages. First, consider the efficiency of governance structures with the franchisor having authority. The efficient governance structure is determined by comparing the governance structures II, III, and IV. If the franchisor has power, then governance structure IV is the unique efficient governance structure choice when k_2 and k_3 are small and σ is limited. The intermediate investment incentives for both distributors in governance structure IV create more value than the strong investment incentive for either party 2 in governance structure III or party 3 in governance structure II when the size of the dual distribution externality is limited, i.e. $\sigma < 1 + B/C$. The attractiveness of governance structure IV is that both distributors have an incentive to invest because each of them has power. However, the positive dual distribution externality cannot emerge. Governance structures II and III have the advantage of generating the positive dual distribution externality, but only the independent distributor invests. The value of having two distributors investing without generating the dual distribution externality dominates the generation of the dual distribution externality by having just one investing distributor when the dual distribution externality is not too large. However, if the cost of investment of party 2 (3) increase above $B - (\sigma-1)C$ ($C - (\sigma-1)B$), then governance structure II (III) dominates governance structure IV. Second, the efficient governance structure when the franchisor has authority is compared with the efficient governance structure when the franchisor has no authority, i.e. governance structure VI=VII. Governance structure II dominates the governance structures VI and VII when $k_2 \geq \sigma B - (A - k_1)$, i.e. the dual distribution externality is limited or the value of the brand is substantial. II as well as VI and VII induce investment by party 3, but the costs of investment by party 2 in governance structures VI and VII is too high from an efficiency perspective in order to sacrifice the value generating investment by the franchisor in governance structure II. A similar argument applies regarding governance structure III dominating the governance structures VI and VII when $k_3 \geq \sigma C - (A - k_1)$. The comparison between IV and VI=VII is driven by the dual distribution externality effect. Choosing between allocating authority to the franchisor

in governance structure IV and taking away authority from the franchisor in the governance structures VI and VII entails a trade-off between sacrificing the generation of the dual distribution externality at both outlets versus sacrificing the value of brand development. If $A-k_1<(\sigma-1)(B+C)$, i.e. the value added of the brand is insufficient or the dual distribution externality is substantial, then governance structure IV is dominated by governance structure VI=VII. So, taking power away from the franchisor by switching to the dual distribution cooperative franchise VI or VII is efficient when the relative importance of the brand decreases.

Notice that it is not necessary for dual distribution franchising being a unique efficient governance structure that B<C. The value generated by the independent distributor in a dual distribution governance structure is higher than the value generated by either one or two distributors in governance structure IV. This result shows that it is not necessary for the emergence of dual distribution that there are locational differences, or other differences between the distributors. System wide externalities are responsible for dual distribution being a unique, efficient governance structure.

We have now covered the case $1<\sigma<1+B/C$, i.e. a positive, but limited, dual distribution externalities. If there are substantial positive dual distribution externalities, i.e. $\sigma\geq1+B/C$, then the size of the south-west rectangle is zero. There are no parameter values for which governance structure IV is the unique efficient governance structure anymore. The intermediate investment incentives for both distributors in governance structure IV are not strong enough to override the strong investment incentives for either party 2 in governance structure III or party 3 in governance structure II.

A figure similar to figure 3 can be determined when $\sigma<1$. It turns out that governance structure IV is first best efficient for all parameter values.[15] It prevents on the one hand the emergence of the negative dual distribution externality in the governance structures II, III, VI and VII, and on the other hand the allocation of insufficient power to either the distributors in governance structure I or the franchisor in governance structure V. This result implies that dual distribution is due to the systemic effect σ, regardless the value of brand name, i.e. $A-k_1$, or locational (or other) differences between outlets, i.e. $B-k_2$ and $C-k_3$. The importance of this systemic effect seems to be in line with the empirical result of Lafontaine and Shaw (2005) that dual distribution of established franchises is stable over time, i.e. the percentage of company ownership remains fixed after the early years in franchising and firms change their number of both company-owned and franchised outlets as they grow or decline.

Finally, governance structure IV is also first best efficient for all parameter values when $\sigma=1$. It is the unique first best efficient governance structure when $k_2<B$ and $k_3<C$. If $k_2\geq B$ and $k_3<C$, then also governance structure II is first best efficient. If $k_2<B$ and $k_3\geq C$, then also governance structure III is first best efficient. The governance structures I-IV are first best efficient when $k_2\geq B$ and $k_3\geq C$. Cooperative franchises are never efficient when $\sigma\leq1$.

4.2 Managerial implications

This section formulates several managerial implications of our model. They relate to the second best efficient governance structure, the effect of changes in the parameters on the second best efficient governance structure, and sectoral differences.

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[15] If $k_2\geq B$ and $k_3\geq C$, then governance structures I-III are also first best efficient.

First, if for specific parameter values the actual governance structure differs from the efficient governance structure predicted by the model, then this discrepancy has to be explained. Many problems are involved in doing such an exercise because the actual business world and a model are hardly ever a perfect match. However, if the model predicts that there are no circumstances for a certain governance to be efficient, then it entails that its occurrence is expected to be absent. Our results show that wholly–company owned franchising, i.e. governance structure I, is not likely to occur. This is in line with the observations of Blair and Lafontaine (2005) that franchise systems with the franchisor owning all outlets are rare. Similarly, if there is a positive dual distribution benefit, i.e. $\sigma > 1$, then dual distribution is predicted to be a unique efficient governance structure for a large set of parameter values. Again, this seems to be corroborated. Lafontaine and Shaw (2005, footnote 6) report that '… most chains operate what they see as the optimal proportion of company units. In the vast majority of cases, this proportion is neither 0% nor 100%'. It is therefore important to manage the systemic effect (Bradach 1997). Notice that the exact dual distribution governance structure to be expected is determined in our model by the relative importance of the value of investment of all parties, not just the value added by franchisor, e.g. brand name, or the franchisees, e.g. developing the local market.

Second, the model implies a number of changes in the efficient governance structure due to changes in the exogenous parameters. Lafontaine and Shaw (2005) show that the percentage of company owned outlets increases when the value of the brand name increases, i.e. $A-k_1$. Our model is inconclusive about this relationship because the dotted line in figure 4, its location being determined by the value of the brand name, is separating different dual distribution governance structures. However, there is an obvious relationship between the dual distribution benefit and the efficient governance structure. Dual distribution is absent when $\sigma < 1$, while it is pervasive when $\sigma > 1$. Figure 4 reinforces this relationship because the area where governance structure is efficient shrinks when σ is increasing, i.e. a switch from wholly-franchised chain IV to a dual distribution chain is expected. Changes in the costs of investment of the distributors may also change the equilibrium percentage of dual distribution. A decrease in either k_2 or k_3, or an increase in either B or C, may decrease the percentage of company owned outlets because sacrificing the dual distribution benefit is attractive in order to restore the incentive to invest for all distributors (IV).

Third, Lafontaine and Shaw (2005) show that established chains maintain a stable percentage of company-owned outlets, but that this percentage varies considerably across sectors. Some industries such as hotels (Kalnins 2004) exhibit much less dual distribution than others such as fast food. Our analysis indicates that the nature of this variation resides in unique dual distribution benefits and the relative importance of the value of the specific investments of all chain participants. If the percentage of company owned outlets is very low, then our model indicates that positive systemic effects are absent, regardless the value of the brand.

5. Conclusions and further research

The main contribution of this article is the development of an incomplete contracting model of the efficient governance structure of a franchise system. After laying out all possible governance structures, circumstances are identified when dual distribution in franchising is the unique equilibrium governance structure that induces investment by the various parties exactly when it is efficient to do so. Dual distribution franchising is the sub-game perfect equilibrium governance structure

when the dual distribution externalities are significant and the cost of investment is not too large for the parties involved. Whether the dual distribution benefits are realized in a traditional franchise or a cooperative franchise depends on whether most value is added upstream or downstream. A disadvantage of dual distribution is the deterioration of the investment incentives of the party having no authority, i.e. either the company-owned outlet manager in a traditional franchise or the franchisor in a cooperative franchise. A wholly-franchised system may therefore be efficient even when unique dual distribution benefits are present. A necessary condition for the efficiency of a dual distribution governance structure is a positive systemic effect (σ), not the value of the brand name ($A-k_1$) or location (or other) differences between outlets ($B-k_2$ and $C-k_3$).

A key distinction between our theory and preceding work regarding franchising is that we account explicitly for all possible governance structures. This is valuable because the existing literature provides explanations as to why wholly owned or wholly-franchised structures exist, but not a mixed system (e.g. Lutz 1995). Additionally, an incomplete contracting perspective on franchising is advanced, while the marketing literature on franchising and channels has chiefly used complete contracting (principal-agent) models (e.g. Lal 1990). Finally, many analyses of franchise systems consider the incentives to invest for either the franchisor or the distributors. Our model provides a unified treatment of the incentive to invest for the franchisor as well as the distributors.

Further research may be guided by extending the model in various directions. A number of possibilities are formulated. First, actual franchise systems exhibit a substantial power asymmetry between small franchisees and the large franchisor. One way of restoring the balance of power is by erecting a franchisee council (Ehrmann and Spranger 2007) and to study the optimal allocation of rights to them. Our model can be tailored in a straightforward way to this issue by modeling countervailing power as an association of various distributors. Second, our framework seems also to be suitable for analyzing multiple unit franchising, i.e. a franchise system with franchisees owning several outlets.

Third, we assume that the efficient governance structure emerges in the first stage of the game. This is a good assumption to start an analysis of governance structure choice, because a competitive market in governance structures will lead to displacing the relatively inefficient governance structures by the relatively efficient ones. It is also convenient because it eliminates the need for specifying a decision sequence in the first stage of the game. However, there is often a tension between efficiency and distributional / strategic considerations. Efficiency may dictate a drastic change in governance structure, but the distributional implications may prevent that the change occurs.

Fourth, the model considers only the allocation of ownership. Ownership is a crude instrument to align interests. Many franchises spend considerable effort in designing appropriate franchisee incentive schemes, including franchise fee, royalty rates, preventing free riding by the franchisees on the brand name, and monitoring.[16] Decision and income rights have therefore to be considered simultaneously in the choice of governance structure.[17]

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[16] Bradach and Eccles (1989) highlight the multiplicity of control mechanisms already.

[17] Examples are Holmstrom and Milgrom (1994) address the complementarity between decision and income rights, Bai and Tao (2000) formulate a multitasking model of franchising with the tasks of providing local service and providing effort towards generating goodwill, and Windsperger and Yurdakul (2007) show that dual distribution may alleviate incentive conflicts by assigning a proportion

Fifth, the extent of incompleteness is not endogenous in our model. A franchise has to decide how much discretion regarding activities is assigned to the franchisees. The standard way of dealing with this issue in franchises is the choice of the business format. Croonen (2005) shows that the extent of coverage of the business format varies considerably between enterprises. Modeling the extent of coverage of the business format along the lines of Tadelis (2002) is a challenging line of future research. [18]

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of company-owned outlets to the franchisor in order to increase his weak investment incentives due to the strong investment incentives of a low royalty rate. The empirical result of Lafontaine and Shaw (2005) that dual distribution of established franchises is stable over time, i.e. the percentage of company ownership remains fixed after the early years in franchising and firms change their number of both company-owned and franchised outlets as they grow or decline, seems to be in line with systemic effects in dual distribution franchising.

[18] The standard modelling of complete and incomplete contracts represent two extremes (Bajari and Tadelis, 2001). The cost of specifying an additional state of nature in complete contracting models is zero, whereas it is infinite in incomplete contracting models. Most realistic is that positive, finite costs are incurred by specifying an additional contractual clause, having an impact on the choice of governance structure.

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Appendix: Governance structure and payoffs

This appendix formulates the extensive form of the game. A governance structure is in our model an allocation of bargaining power. One way to represent bargaining power differences between governance structures in a consistent way is the Shapley value. Section A1 is dedicated to determining the Shapley value of each governance structure. These Shapley values are used to specify the payoffs in the extensive form. Section A2 presents the extensive form.

A1. Shapley values

The Shapley value is an equilibrium concept in cooperative game theory. A cooperative game consists of the characteristic function (N,v), where N is the set of players and v specifies a payoff for every possible subset of the set of players. The characteristic function depends on the choice of governance structure (G) and the choice of investment (x) of the involved parties. Define the vector $x = (x_1, x_2, x_3)$, where x_1 (x_2, x_3) is the investment level by party 1 (2, 3). If a party invests (does not invest), then x_i is equal to 1 (0).

Table A1 presents the characteristic function of all governance structures when all parties invest, i.e. x=(1,1,1). For example, the value of a coalition consisting of only the franchisor, i.e. v(1), is A+σB in governance structure II because the franchisor owns his own assets and the assets of party 2. A coalition consisting of only party 2 has no value in governance structure II because this coalition owns no assets. The value of a coalition consisting of the parties 1 and 3, i.e. v(13), is A+σB+σC because together they own all assets. The value of the coalition of the parties 1 and 3 is identical to the value of the coalition of all players, i.e. v(13) is equal to v(123), because party 2 adds no value to the coalition of the players 1 and 3 in governance structure II. The change from governance structure I to governance structure II shows the effect of a dual distribution governance structure.

x	(1,1,1)	(1,1,1)	(1,1,1)	(1,1,1)	(1,1,1)	(1,1,1)	(1,1,1)
G	I	II	III	IV	V	VI	VII
v(1)	A+B+C	A+σB	A+σC	A	0	0	0
v(2)	0	0	σB	B	A/2+B	A+σB	σB
v(3)	0	σC	0	C	A/2+C	σC	A+σC
v(12)	A+B+C	A+σB	A+σB+σC	A+B	A/2+B	A+σB	σB
v(13)	A+B+C	A+σB+σC	A+σC	A+C	A/2+C	σC	A+σC
v(23)	0	σC	σB	B+C	A+B+C	A+σB+σC	A+σB+σC
v(123)	A+B+C	A+σB+σC	A+σB+σC	A+B+C	A+B+C	A+σB+σC	A+σB+σC

Table A1: Characteristic function forms when all parties invest

The characteristic function determines the way in which the revenues are allocated to the three parties. This allocation of the revenues is determined by calculating the equilibrium of a cooperative game by the Shapley value.[19] These values / payoffs reflect the distribution of bargaining power. The economic interpretation of the Shapley value is that it provides a measure for the incentive

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[19] We use, like Hart and Moore (1990), the Shapley value in order to determine the value of each player in each governance structure for all combinations of investment decisions. For a noncooperative justification for the use of the Shapley value, see Gul (1989) and appendix A of Hart and Moore (1988).

intensity to invest. Table A2 presents the Shapley values belonging to the characteristic functions of table A1.

x	G	Shapley value franchisor	Shapley value seller B	Shapley value seller C
(1,1,1)	I	A+B+C	0	0
(1,1,1)	II	A+σB	0	σC
(1,1,1)	III	A+σC	σB	0
(1,1,1)	IV	A	B	C
(1,1,1)	V	0	A/2+B	A/2+C
(1,1,1)	VI	0	A+σB	σC
(1,1,1)	VII	0	σB	A+σC

Table A2: Shapley values when all parties invest

A2. Extensive form

The non-cooperative game of this paper consists of two stages. The first stage of the game consists of the choice of governance structure. There are seven possible governance structures. The second stage of the game consists of the investment decisions of the three players. Each player decides between investing and not investing in specific assets. The total number of possibilities is therefore 7x2x2x2=56. This is too much to present in one figure. The extensive form will therefore be presented in seven separate figures. The payoffs are composed of revenues and costs. The revenues are taken directly from table A2, while each player carries its costs of specific investments. For example, branch NYN in figure A1 corresponds to investment vector (0,1,0) in governance structure I, i.e. only party 2 invests. The investment of party 2 generates revenue B. Revenue B is allocated to the franchisor in governance structure I, while party 2 carries the costs k_2. Table 1 presents the payoffs of the branch YYY of the figures A1-A7.
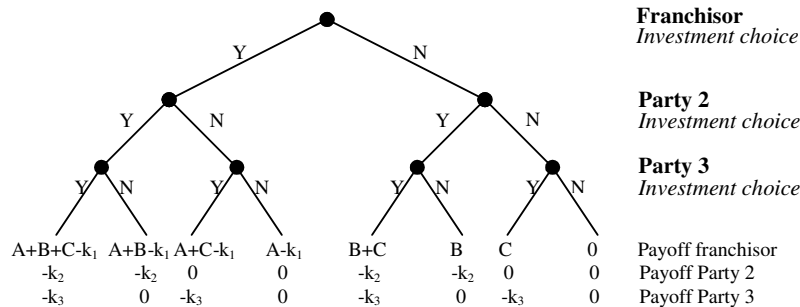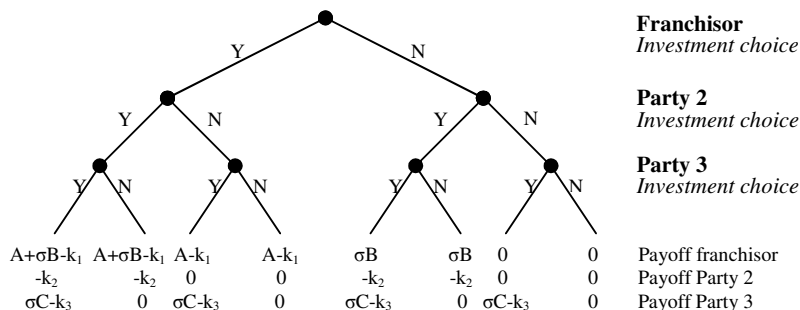

Figure A1: Extensive form when governance structure I

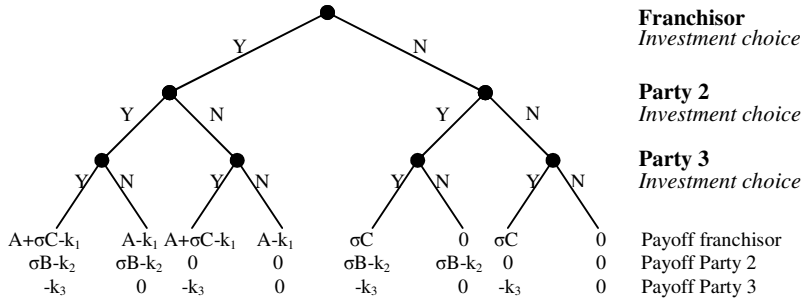Figure A2: Extensive form when governance structure II

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Payoff franchisor	$A+\sigma C-k_1$	$A-k_1$	$A+\sigma C-k_1$	$A-k_1$	σC	0	σC	0
Payoff Party 2	$\sigma B-k_2$	$\sigma B-k_2$	0	0	$\sigma B-k_2$	$\sigma B-k_2$	0	0
Payoff Party 3	$-k_3$	0	$-k_3$	0	$-k_3$	0	$-k_3$	0

Franchisor *Investment choice*
Party 2 *Investment choice*
Party 3 *Investment choice*

Figure A3: Extensive form when governance structure III

Payoff Franchisor	$A-k_1$	$A-k_1$	$A-k_1$	$A-k_1$	0	0	0	0
Payoff Party 2	$B-k_2$	$B-k_2$	0	0	$B-k_2$	$B-k_2$	0	0
Payoff Party 3	$C-k_3$	0	$C-k_3$	0	$C-k_3$	0	$C-k_3$	0

Franchisor *Investment choice*
Party 2 *Investment choice*
Party 3 *Investment choice*
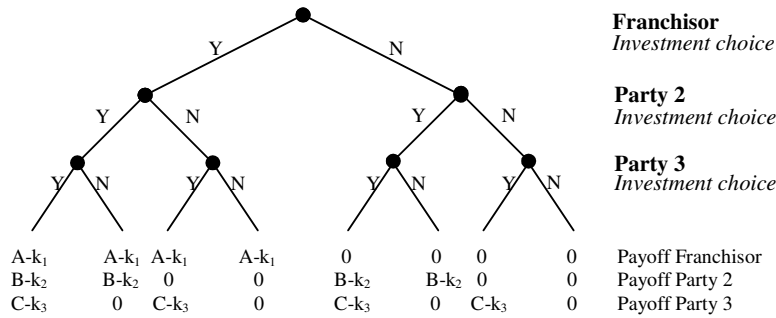
Figure A4: Extensive form when governance structure IV

Payoff Franchisor	$-k_1$	$-k_1$	$-k_1$	$-k_1$	0	0	0	0
Payoff Party 2	$A/2+B-k_2$	$A/2+B-k_2$	$A/2$	0	$B-k_2$	$B-k_2$	0	0
Payoff Party 3	$A/2+C-k_3$	$A/2$	$A/2+C-k_3$	0	$C-k_3$	0	$C-k_3$	0

Franchisor *Investment choice*
Party 2 *Investment choice*
Party 3 *Investment choice*
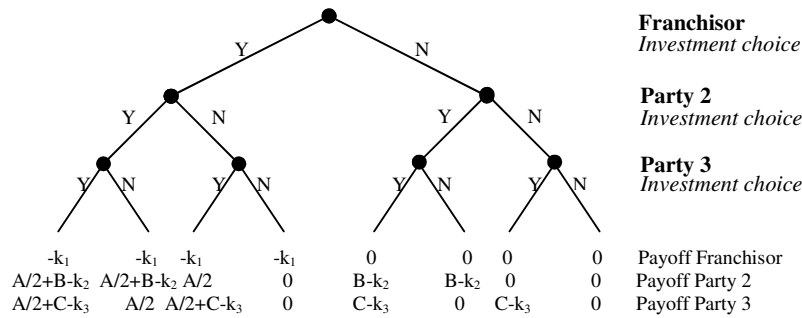
Figure A5: Extensive form when governance structure V

Payoff franchisor	$-k_1$	$-k_1$	$-k_1$	$-k_1$	0	0	0	0
Payoff Party 2	$A+\sigma B-k_2$	$A+\sigma B-k_2$	A	A	$\sigma B-k_2$	$\sigma B-k_2$	0	0
Payoff Party 3	$\sigma C-k_3$	0	$\sigma C-k_3$	0	$\sigma C-k_3$	0	$\sigma C-k_3$	0

Franchisor *Investment choice*
Party 2 *Investment choice*
Party 3 *Investment choice*

Figure A6: Extensive form when governance structure VI

Figure A7: Extensive form when governance structure VII

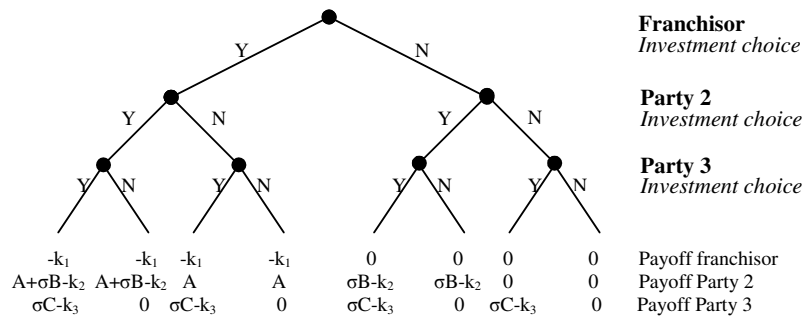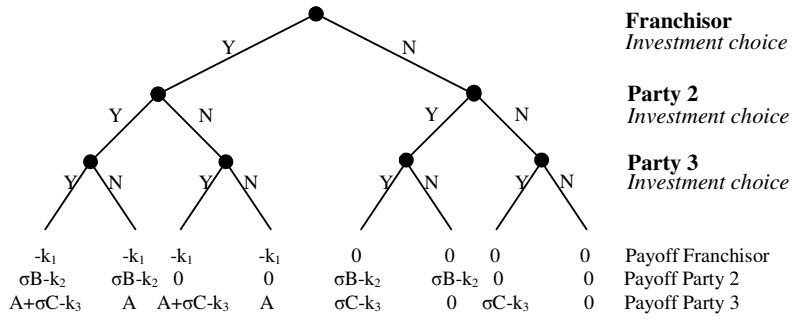# Publications in the ERIM Report Series Research* in Management

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